openreach

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Suppliers' Information Note

For The Openreach Network

Terminal Equipment Spectral Power Requirements

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Scope

This Suppliers Information Note (SIN 375) relates to the requirement for equipment connected to the metallic twisted pairs of the Openreach access network to comply with the "Specification of the Access Network Frequency Plan (ANFP) applicable to transmission systems used on the Openreach Access Network" [1].

This document encompasses all Openreach switched and leased line services utilising the metallic twisted pairs of the Openreach access network. Service declarations for 'PSTN - Single Analogue Line Interface' SIN 351 [2], and 'Analogue Private Circuit - 2-Wire and 4-Wire Interfaces' SIN 355 [3], expand on the information contained in this SIN in order to highlight the service specific issues of Home Phoneline Networking, and compatibility of DSL technology with Baseband analogue private circuits.

Changes to the network that affect the correct working of terminal equipment will be published in Openreach SINs. If the changes impact on the content of this document then it will be updated.

Terminal Equipment Spectral Requirements

To prevent undue interference with other users of the Openreach access network, terminal equipment shall conform to the requirements of the "Specification of the Access Network Frequency Plan (ANFP) applicable to transmission systems used on the Openreach Access Network" [1]. This ANFP defines six different points of connection, each of which has a dedicated Power Spectral Density (PSD) limit mask(s). These application points are as follows:

Point of Application of the ANFP	PSD Mask specification
MDF (at an MDF site/exchange) connected to metallic access network cables routed to an NTP via a SLCP.	Part A
SDF (as a sub-loop connection point)	Part B
NTP (at the customer's premises)	Part C
MDF Exchange Outlet (at an MDF site/exchange) connected to metallic access network cables routed directly to an NTP without a SLCP included in the routing and not sharing a cable sheath containing cables routed via a SLCP.	Part D
G.fast SDF (as a G.fast sub-loop connection point)	Part E
G.fast NTP (at the customer's premise), paired with Part E	Part F

Table 1 - Interface Categories [1].

Part B of the ANFP defines a range of PSD masks for the cabinet SDF depending on the loss from the MDF site to the SDF site (i.e. the loss of the E-side cable). As there may be more than one type and route of cable between these two sites with disparate losses the nominal loss for a given cabinet may be based on the statistics of these losses, with the resulting loss figure being called the Cabinet Assigned Loss (CAL).

A Cabinet Assigned Loss will be identified for all Openreach cabinets based on estimates of the losses of all the cables between the MDF site and the SDF site. New Openreach cabinets will be given a Cabinet Assigned Loss upon completion of their installation. Once the assignment has been made, it is fixed and will only change if that cabinet (or the cables terminating on the cabinet) are subject to a significant engineering modification (e.g. re-routing due to a road development scheme) or to an ANFP assignment check process that results in a change in the assignment.

Part C of the ANFP divides the access network metallic loops into five line categories, 'ultra short', 'extra short', 'short', 'medium', and 'long'. Each category has an associated Power Spectral Density mask (PSD) defining the maximum power for each frequency that may be injected into the line at the customer end of the local loop. Once the ANFP categorisation has been undertaken, the ANFP category for a given line is fixed and will only change if that line (or the lines terminated on the same Distribution Point {DP}) is subject to a significant engineering modification (e.g. re-routing due to a road development scheme).

Part E of the ANFP defines the PSD limit masks for G.fast systems deployed at the cabinet G-SDF. The Cabinet Assigned Loss for the G-SDF is the Part B Cabinet Assigned Loss for the SDF.

Part F specifies the PSD mask that applies to G.fast terminal equipment connected to the NTP when that equipment is communicating with equipment connected at the G-SDF.

If interference is caused to other users of the Openreach access network, and this is identified as resulting from terminal equipment being non-compliant with the ANFP, Openreach will be required to take remedial action in co-operation with the CP to remove the cause of the interference. This may result in the disconnection of the circuit from the non-compliant terminal equipment.

Glossary

ANFP	Access Network Frequency Plan
CAL	Cabinet Assigned Loss
DP	Distribution Point
DSL	Digital Subscriber Line
G-SDF	G.fast Secondary Distribution Frame (in street cabinet)

MDF	Main Distributioin Frame
NTP	Network Termination Point (in customer's premises)
PSD	Power Spectral Density
SDF	Secondary Distribution Frame (in street cabinet)
SI	Statutory Instrument
SIN	Suppliers' Information Note
SLCP	Sub Loop Crossconnection Point (i.e. street cabinet)

References

[1]	**NICC Document ND 1602: 2019/11**	Specification of the Access Network Frequency Plan applicable to transmission systems used on the BT Access Network – Issue 7 v7.2.1. *Note: This document is available at* http://www.niccstandards.org.uk/
[2]	**SIN 351**	'BT Public Switched Telephone Network (PSTN): Technical Characteristics Of The Single Analogue Line Interface'.
[3]	**SIN 355**	'BT Analogue Private Circuits: Technical Characteristics of 2-Wire and 4-wire Analogue Interfaces'.

For further information or copies of referenced sources, please see document sources at

https://www.openreach.co.uk/cpportal/help/suppliers-information-notes-(sins)

History

Issue 1	December 2000	First Issued.
Issue 1.1	February 2003	Edited to reflect ANFP Issue 2 and introduction of the 'extra short' line category. Clause 2 – Reference to the RE&TTE Directive and SI 2000 No.730 added.
Issue 1.2	February 2004	Clauses 2 and 4- References to SI 2003 No.1903 and SI 2003 No.1344 added. Clause 4 - up-date to URL link to BT ANFP specification.
Issue 1.3	September 2005	Edited to reference the new Issue of the BT ANFP published by NICC.
Issue 1.4	November 2011	Updated the list of example products that relate to this SIN and updated reference to the ANFP published by NICC.
Issue 1.5	November 2015	ANFP Section updated Changed SINet site references from http://www.sinet.bt.com to http://www.btplc.com/sinet/
Issue 1.6	April 2016	ANFP section updated
Issue 1.7	April 2018	Updated to reflect current standards.
Issue 1.8	April 2019	ANFP reference updated to reflect latest version. Hyperlink to NICC website added. Several typos corrected
Issue 1.9	July 2020	ANFP reference updated to reflect lastest version. Changed SINet site references from http://www.btplc.com/sinet/ to https://www.openreach.co.uk/orpg/home/helpandsupport/sins/sins.do Changed email function account from sinet.helpdesk@bt.com to orsinsfa@openreach.co.uk Minor editorials
Issue 2.0	May 2021	Annual Review – no changes made
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Issue 2.0	October 2024	Annual Review – no changes made – issue number therefore remains the same

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